

06/17/00
1c657 U.S. PTO

06-2c-00

A

Please type a plus sign (+) inside this box → ☒

PTO/SB/05 (4/98)
Approved for use through 09/30/2000. OMB 0651-0032
Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

UTILITY PATENT APPLICATION TRANSMITTAL (Only for new nonprovisional applications under 37 C.F.R. § 1.53(b))	Attorney Docket No.	TQIP-0002
	First Inventor or Application Identifier	Uday R. Parekh
	Title	SYSTEM AND METHOD FOR EX POST FACTO PRESERVING A RECORDED CONVERSATION
	Express Mail Label No.	EL053867279US

APPLICATION ELEMENTS <small>See MPEP chapter 600 concerning utility patent application contents.</small>	ADDRESS TO: Assistant Commissioner for Patents Box Patent Application Washington, DC 20231	
1. <input checked="" type="checkbox"/> * Fee Transmittal Form (e.g., PTO/SB/17) (Submit an original and a duplicate for fee processing)	5. <input type="checkbox"/> Microfiche Computer Program (Appendix)	
2. <input checked="" type="checkbox"/> Specification [Total Pages 28] (preferred arrangement set forth below) <ul style="list-style-type: none">- Descriptive title of the invention- Cross References to Related Applications- Statement Regarding Fed sponsored R & D- Reference to Microfiche Appendix- Background of the invention- Brief Summary of the invention- Brief Description of the Drawings (if filed)- Detailed Description- Claim(s)- Abstract of the Disclosure	6. Nucleotide and/or Amino Acid Sequence Submission (if applicable, all necessary) <ul style="list-style-type: none">a. <input type="checkbox"/> Computer Readable Copyb. <input type="checkbox"/> Paper Copy (identical to computer copy)c. <input type="checkbox"/> Statement verifying identity of above copies	
3. <input checked="" type="checkbox"/> Drawing(s) (35 U.S.C. 113) [Total Sheets 4]	ACCOMPANYING APPLICATION PARTS 7. <input checked="" type="checkbox"/> Assignment Papers (cover sheet & document(s)) 8. <input type="checkbox"/> 37 C.F.R. § 3.73(b) Statement of Power of Attorney (when there is an assignee) 9. <input type="checkbox"/> English Translation Document (if applicable) 10. <input type="checkbox"/> Information Disclosure Statement (IDS)/PTO-1449 [Copies of IDS Citations] 11. <input type="checkbox"/> Preliminary Amendment 12. <input checked="" type="checkbox"/> Return Receipt Postcard (MPEP 503) (Should be specifically itemized) 13. <input checked="" type="checkbox"/> * Small Entity Statement(s) [Statement filed in prior application, Status still proper and desired (PTO/SB/09-12)] 14. <input type="checkbox"/> Certified Copy of Priority Document(s) (if foreign priority is claimed) 15. <input type="checkbox"/> Other:	
4. Oath or Declaration [Total Pages 5] <ul style="list-style-type: none">a. <input checked="" type="checkbox"/> Newly executed (original or copy)b. <input type="checkbox"/> Copy from a prior application (37 C.F.R. § 1.63(d)) (for continuation/divisional with Box 16 completed)i. <input type="checkbox"/> DELETION OF INVENTOR(S) Signed statement attached deleting inventor(s) named in the prior application, see 37 C.F.R. §§ 1.63(d)(2) and 1.33(b).		
* NOTE FOR ITEMS 1 & 13: IN ORDER TO BE ENTITLED TO PAY SMALL ENTITY FEES, A SMALL ENTITY STATEMENT IS REQUIRED (37 C.F.R. § 1.27), EXCEPT IF ONE FILED IN A PRIOR APPLICATION IS RELIED UPON (37 C.F.R. § 1.28).		
16. If a CONTINUING APPLICATION, check appropriate box, and supply the requisite information below and in a preliminary amendment: <input type="checkbox"/> Continuation <input type="checkbox"/> Divisional <input type="checkbox"/> Continuation-in-part (CIP) of prior application No: _____ Prior application information: Examiner _____ Group / Art Unit: _____ For CONTINUATION or DIVISIONAL APPS only: The entire disclosure of the prior application, from which an oath or declaration is supplied under Box 4b, is considered a part of the disclosure of the accompanying continuation or divisional application and is hereby incorporated by reference. The incorporation can only be relied upon when a portion has been inadvertently omitted from the submitted application parts.		

17. CORRESPONDENCE ADDRESS					
<input type="checkbox"/> Customer Number or Bar Code Label [] or <input checked="" type="checkbox"/> Correspondence address below (Insert Customer No. or Attach bar code label here)					
Name	Charles W. Gaines Hitt Chwang & Gaines, P.C.				
Address	P.O. Box 832570				
City	Richardson	State	Texas	Zip Code	75083
Country		Telephone	(972) 480-8800	Fax	(972) 480-8865

Name (Print/Type)	Charles W. Gaines	Registration No. (Attorney/Agent)	36,804
Signature	<i>Charles W. Gaines</i>	Date	06/16/00

Burden Hour Statement: This form is estimated to take 0.2 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Box Patent Application, Washington, DC 20231.

**STATEMENT CLAIMING SMALL ENTITY STATUS
(37 CFR 1.9(f) & 1.27(c))--SMALL BUSINESS CONCERN**

Docket Number (Optional)
TQIP-0002

Applicant, Patentee, or Identifier: Uday R. Parekh
Application or Patent No.: N/A
Filed or Issued: _____
Title: SYSTEM AND METHOD FOR EX POST FACTO PRESERVING A RECORDED CONVERSATION

I hereby state that I am

- ☒ the owner of the small business concern identified below:
☐ an official of the small business concern empowered to act on behalf of the concern identified below:

NAME OF SMALL BUSINESS CONCERN Telequip Labs, Inc.

ADDRESS OF SMALL BUSINESS CONCERN 1820 North Greenville Avenue - Richardson, Texas 75081

I hereby state that the above identified small business concern qualifies as a small business concern as defined in 13 CFR Part 121 for purposes of paying reduced fees to the United States Patent and Trademark Office. Questions related to size standards for a small business concern may be directed to: Small Business Administration, Size Standards Staff, 409 Third Street, SW, Washington, DC 20416.

I hereby state that rights under contract or law have been conveyed to and remain with the small business concern identified above with regard to the invention described in:

- ☐ the specification filed herewith with title as listed above.
☒ the application identified above.
☐ the patent identified above.

If the rights held by the above identified small business concern are not exclusive, each individual, concern, or organization having rights in the invention must file separate statements as to their status as small entities, and no rights to the invention are held by any person, other than the inventor, who would not qualify as an independent inventor under 37 CFR 1.9(c) if that person made the invention, or by any concern which would not qualify as a small business concern under 37 CFR 1.9(d), or a nonprofit organization under 37 CFR 1.9(e).

- Each person, concern, or organization having any rights in the invention is listed below:
☒ no such person, concern, or organization exists.
☐ each such person, concern, or organization is listed below.

Separate statements are required from each named person, concern or organization having rights to the invention stating their status as small entities. (37 CFR 1.27)

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

NAME OF PERSON SIGNING John B. Mow
TITLE OF PERSON IF OTHER THAN OWNER VP & COO
ADDRESS OF PERSON SIGNING 1820 N. Greenville Ave, Richardson, Tx 75081
SIGNATURE John B. Mow DATE 6-12-00

**SYSTEM AND METHOD FOR EX POST FACTO
PRESERVING A RECORDED CONVERSATION**

Inventors: Uday R. Parekh
4552 Huntwick Drive
Plano, Texas 75024

John Beck Mow
6911 Midcrest Drive
Dallas, Texas 75240

Danny C. Milliorn
1156 Maree Drive
Waxahachie, Texas 75165

Assignee: Telequip Labs, Inc.
1820 North Greenville Avenue
Richardson, Texas 75081

CERTIFICATE OF EXPRESS MAIL

I hereby certify that this correspondence, including the attachments listed, is being deposited with the United States Postal Service, Express Mail - Post Office to Addressee, Receipt No. EL053867279US, in an envelope addressed to Commissioner of Patents and Trademarks, Washington, D.C. 20231, on the date shown below.

6/16/00
Date of Mailing

GLENDAL WILLIS
Typed or printed name of person mailing

Glenda L. Willis
Signature of person mailing

Hitt Chwang & Gaines, P.C.
P.O. Box 832570
Richardson, Texas 75083
972-480-8800

SYSTEM AND METHOD FOR EX POST FACTO PRESERVING A RECORDED CONVERSATION

TECHNICAL FIELD OF THE INVENTION

The present invention is directed, in general, to automated
5 call placement systems (ACPs) and, more specifically, to a system
and method for ex post facto preserving a recorded conversation.

BACKGROUND OF THE INVENTION

Inmates at correctional facilities have begun to regard access
to a telephone to be a valuable privilege. Years ago, correctional
10 facilities (prisons, jails and the like) made a few telephones
available at a central location. To ensure that the inmates said
nothing inappropriate, correctional officers (or, more
colloquially, "guards") stood by or listened on nearby telephones
to inmate conversations.

15 Soon, however, correctional facilities began to install
automated call placement systems (ACPs) with distributed
telephones, perhaps with a telephone in each inmate's cell. Denied
their convenient central location, correctional officers began to
be required to monitor conversations more closely. Controls (such

as individual access codes) began to be put into place to ensure that only inmates who had earned the privilege were allowed access to a telephone. Correctional officers began to use dedicated call monitoring telephones to monitor conversations.

5 ACPs then began to be fitted with recorders, so conversations could be stored and played back at will. The earliest recorders were multiple track tape recorders wherein each track was assigned to monitor each outbound trunk line. The recorders were placed into a continuous recording mode, so that all conversations were recorded. If a particular conversation or conversations were desired to be played back or archived, each conversation on each track was required to be scanned to find the right one(s).

10 More sophisticated call monitoring units eventually replaced tape recorders. These units employed disk storage in lieu of tape and stored conversations in digitized form on the disks. The correctional officer could then scan through the conversations taking place at a particular time, monitor a particular one of the conversations at length and search the call monitoring unit for the particular file containing the conversation in its entirety to
15 allow him to hear the parts of the conversation he may have missed. Such a call monitoring unit is described in U.S. Patent Application Serial No. [Attorney Docket No. TQIP-0001], filed on _____, and entitled "System and Method for Remotely Controlling Automated
20

Call Placement Call Monitoring Functions," commonly assigned with the present Application and incorporated herein in its entirety.

Unfortunately, even with highly advanced call monitoring units such as that described in the above-mentioned patent application, the finite amount of storage space available on the data storage disks requires the unit to erase (or, more accurately, record over) existing conversations to make room for newly recorded conversations. As a result, important conversations are increasingly at risk of being overwritten, as each day the unit records new conversations. Accordingly, what is needed in the art is a call monitoring unit, and related method of recording, capable of more safely storing recorded conversations. Further, what is needed in the art is an automated call placement system incorporating the call monitoring unit or the method.

SUMMARY OF THE INVENTION

To address the above-discussed deficiencies of the prior art, the present invention provides, for use with an automated call placement system (ACP) having a switching service unit, a call monitoring unit capable of monitoring a selected one of lines coupled to the switching service unit and a method of making a recording of a conversation occurring on a selected one of lines coupled to the switching service unit. In one embodiment, the system includes: (1) an analog or digital recorder, coupled to the call monitoring unit, that monitors a call carried on the selected one of the lines and creates a recording of the call on a storage medium (perhaps including disk storage) associated therewith, the storage medium being of finite capacity thereby causing the recording to be subject to eventual overwriting and (2) a recorder controller, coupled to the recorder, that audibly reproduces the call to a user in real time and allows the user to preserve the recording to delay (or, in some embodiments, completely prevent) the overwriting.

In one embodiment of the present invention, the storage medium contains a plurality of recordings arranged in directories according to a date on which the recorder created the plurality of recordings. In such embodiment, the recorder can employ aging (or

other prioritization) to overwrite older (or lower priority) recordings and thereby recover space for storage of more recent (or higher priority) recordings. Of course, this can expose recordings to an ever-increasing risk of overwriting as they age (or diminish in priority). Accordingly, the present invention allows recordings to be designated to delay or prevent them from being overwritten. Of course, the plurality of recordings may be arranged in any other suitable manner (such as by extension number, inmate number, inmate gang identity or inmate language).

In one embodiment of the present invention, the recorder controller is an ADSI-capable device. Those skilled in the art are familiar with the ADSI standard and its use in effecting remote control of system functions in general. Although not necessary to the present invention, an ADSI-capable device may be employed to effect preservation of a recording from a location distal from the recorder.

The foregoing has outlined, rather broadly, preferred and alternative features of the present invention so that those skilled in the art may better understand the detailed description of the invention that follows. Additional features of the invention will be described hereinafter that form the subject of the claims of the invention. Those skilled in the art should appreciate that they can readily use the disclosed conception and specific embodiment as

a basis for designing or modifying other structures for carrying out the same purposes of the present invention. Those skilled in the art should also realize that such equivalent constructions do not depart from the spirit and scope of the invention in its broadest form.

5

BRIEF DESCRIPTION OF THE DRAWINGS

For a more complete understanding of the present invention, reference is now made to the following descriptions taken in conjunction with the accompanying drawings, in which:

5 FIGURE 1 illustrates a block diagram of an automated call placement system (ACP) having a switching service unit and a call monitoring unit that forms an environment within which the system or method of the present invention can be incorporated;

10 FIGURE 2 illustrates an in-band data-capable device having a display and coupled via a single wire pair or other similar interface to the call monitoring unit of FIGURE 1;

15 FIGURE 3 illustrates a block diagram of a system for ex post facto preserving a recorded conversation constructed according to the principles of the present invention;

20 FIGURE 4 illustrates a block diagram of the digital recorder of FIGURE 3 that may be used with the ACP of FIGURE 1 and the system of FIGURE 3;

FIGURE 5 illustrates a file structure suitable for storing recordings produced by the digital recorder of FIGURE 4; and

20 FIGURE 6 illustrates a flow diagram of a method of ex post facto preserving a recorded conversation carried out according to the principles of the present invention.

DETAILED DESCRIPTION

Referring initially to FIGURE 1, illustrated is a block diagram of an automated call placement system (ACP), generally designated 100. The ACP 100 is illustrated as including a switching service unit (SSU) 110. The SSU 110 is designed to act as a hub, like a private branch exchange (PBX), comprising the SSU 110 and a plurality of stations 120. The SSU 110 acts to interconnect ones of the plurality of stations 120 with ones of a plurality of trunks (telephone lines for gaining access to the public switched telephone network, or PSTN, 130). The SSU 110 may be a conventional, commercially available SSU or any later-developed one capable of interconnecting stations with trunks. (Although only a few stations 120 are illustrated, those skilled in the pertinent art will understand that fewer or more can be supported.)

Though not an exclusive environment for the present invention, the illustrated embodiment of the ACP 100 is adapted for use in a correctional facility (not illustrated) to allow inmates (not illustrated) to place calls to without the facility. Each of the plurality of stations 120 preferably has a keypad for allowing an inmate to enter a code unique to each inmate or speech recognition capability to allow the inmate to speak the code. The code may be,

for example, a publicly known inmate number, a private personal identification number (PIN) or a combination of the two. The inmate then provides a destination telephone number to be dialed. Having provided one or more codes and the destination number, the SSU 110 seizes an available trunk signals the PSTN 130 to initiate a call to the destination number and completes the call in a purely conventional (typically collect) manner. In the case of collect calling, the inmate's code may be verified before seizing a trunk. When the call is terminated (by the inmate, a called party or perhaps a correctional officer), the SSU 110 releases the station from which the inmate placed the call and the trunk involved.

The SSU 110 may be capable of receiving inbound calls from the PSTN 130 destined for one of the plurality of stations 120 or completing intra-PBX calls from one of the plurality of stations 120 to another. However, correctional facilities routinely disable these capabilities on the theory that the public should not be allowed direct access to inmates and that intra-PBX calling may further inmate conspiracies. (Some facilities do allow attorneys to place inbound calls by means of special dialing codes.)

As described above, it is important in some environments to monitor, and perhaps record, the conversations that take place on the plurality of stations 120. In the context of a correctional facility, inmate conversations should be monitored for purposes of

security. In other environments, policy compliance or quality control may be of concern. Accordingly, the ACP 100 is illustrated as including a call monitoring unit 140. The structure and function of the call monitoring unit 140 will be set forth in greater detail in conjunction with FIGURE 3.

Broadly speaking, the call monitoring unit 140 monitors (taps), and perhaps records, conversations taking place between the plurality of stations 120 and the PSTN 130. The call monitoring unit 140 does this by tapping either trunks or station lines (FIGURE 1 illustrates the former), recording one or both sides or the conversation. While the call monitoring unit 140 may simply monitor each trunk or station continuously (requiring one channel per trunk or station), the illustrated call monitoring unit 140 detects when trunks or stations are active, and then selects a channel for that trunk or station.

The call monitoring unit 140 may be analog, but is digital in the illustrated embodiment. Accordingly, the call monitoring unit 140 may take the form of a software-programmed general-purpose computer with telephony interface cards, such as those commercially available from Dialogic Corporation of Parsippany, New Jersey, a subsidiary of Intel Incorporated. The call monitoring unit 140 is illustrated as optionally being connected directly to the SSU 110 (depicted in FIGURE 1 by a broken line directly spanning the call

monitoring unit 140 and the SSU 110). Though not required, a connection between the call monitoring unit 140 and the SSU 110 allows the call monitoring unit 140 to receive data from the SSU 110 regarding calls to be placed through the SSU 110. Were the connection not to be available, the call monitoring unit 140 would be required to detect calls and associated data (such as destination number) from its trunk or station tap.

FIGURE 1 further illustrates a local area network (LAN) that may optionally couple the call monitoring unit 140 to the SSU 110 (depicted in FIGURE 1 by a broken line spanning the call monitoring unit 140 and the SSU 110).

Many currently commercially available SSUs come with LAN interfaces or data communication ports (e.g., at least one serial or parallel port). Likewise, since the call monitoring unit 140 is illustrated as being embodied in a computer system, the call monitoring unit 140 can be provided with a conventional LAN interface or data communication port (typically taking the form of an adapter card). Thus coupled via the interface or port, the call monitoring unit 140 and the SSU 110 can be physically separated from one another, and other devices, such as controllers (not shown) for the ACP as a whole can be made to interact with the call monitoring unit 140 or the SSU 110.

It should be noted that the call monitoring unit 140 may be physically separate from, or integrated with, the SSU 110. The present invention can work with either configuration.

FIGURE 1 finally shows an in-band data-capable device 160 that takes the form of an Analog Display Services Interface (ADSI)-capable telephone in the illustrated embodiment. ADSI is a telecommunications protocol standard published by Bellcore in December, 1993 (Analog Display Services Interface (ADSI) SPCS/Server Generic Requirements, GR-1273-CORE, Issue 1, July 1998), and incorporated herein by reference. ADSI enables alternate voice and data capability over the existing analog telephone network, in which single wire pairs couple stations together; separate wire pairs are not available for signaling or data transfer between the stations. The present invention makes advantageous use of ADSI, or other conventional or later-developed single-wire-pair protocols, to allow the device 160 to control the call monitoring unit 140 through only a single wire pair. This yields substantial flexibility in terms of device 160 location and installation cost, particularly in difficult environments, such as correctional facilities.

The device 160 is shown as being couplable to the call monitoring unit 140 in a number of optional ways. First, the device 160 may be coupled directly to the call monitoring unit 140.

(In such case, the call monitoring unit is provided with an ADSI-capable interface.) Second, the device 160 may be coupled to the call monitoring unit 140 via the LAN 150. (In such case, ADSI-encapsulated information and commands are further encapsulated during their transmission over the LAN 150.) Third, the device 160 may serve as a station in the PBX, and therefore be coupled to the call monitoring unit 140 through the SSU 110. Fourth, the device 160 may be coupled to the call monitoring unit 140 via the PSTN 130. This would allow the device to be located in any place in the world that is reachable by telephone. Finally, the device 160 may be wirelessly coupled to the call monitoring unit 140 directly or via any of the other above-described intermediaries (LAN 150, SSU 110 or PSTN 130). In such case, though the device 160 may no longer communicate through a single wire pair, it nonetheless remains capable of communicating with and controlling the call monitoring unit 140 without requiring wireless bandwidth exceeding that required for voice communication.

Turning now to FIGURE 2, illustrated is the in-band data-capable device 160 of FIGURE 1, which is conventional in all respects, except that it can be programmed according to the principles of the present invention to control a call monitoring unit. The device 160 is illustrated as having a body 210 in which a cradle 220 is formed, a handset 230 disposed within the cradle

220 and having a microphone and speaker (not separately referenced) located therein, a keypad 240, dedicated buttons 250 that control functions of the device 160 and a display 260 that takes the form of an LCD.

5 The display 260 is adapted to show a plurality of lines of alphanumeric text and special characters, with a given number of characters per line. In the illustrated embodiment, the display 260 is capable of displaying seven lines, with 24 characters per line.

10 Located adjacent and to each side of the display 260 are a plurality of software-configurable, or "soft" buttons 270. The soft buttons correspond to specific lines on the display 260, such that characters may be displayed on the display 260 that correspond to particular soft buttons 270.

15 The device 160 receives user traffic through a conventional single wire pair interface (not illustrated) and a single wire pair 280 and reproduces the traffic on the speaker of the handset 230. The device 160 further receives user traffic through the microphone of the handset 230 and transmits the traffic through the single
20 wire pair. The device 160 receives ADSI-encapsulated information from the call monitoring unit 140 of FIGURE 1 and displays the ADSI-encapsulated information on the display 260. The device 160 may also generate ADSI-encapsulated commands (usually in response

to depression of one of the soft buttons 270) intended to control the call monitoring unit 140 of FIGURE 1. The device 160 transmits these ADSI-encapsulated commands over the single wire pair 280 to the call monitoring unit 140.

5 In the illustrated embodiment of the present invention, the device 160 receives electrical power through a separate power line 290 or battery. Most currently available ADSI-capable devices are unable to draw sufficient current from the single wire pair 280 to power the display 260. Thus, they employ the separate power line
10 290 or supply.

Those skilled in the pertinent art will understand that the device 160 may assume alternative embodiments. For example, a multimedia personal computer may be programmed to reproduce user traffic on a speaker thereof, accept and display ADSI-encapsulated
15 information and provide ADSI-encapsulated commands. An ADSI unit having a display and soft buttons may also augment a non-ADSI telephone to yield a suitable device 160.

Turning now to FIGURE 3, illustrated is a block diagram of a system 300 for ex post facto preserving a recorded conversation
20 constructed according to the principles of the present invention. The system 300 includes a call monitoring unit 310. The call monitoring unit 310 includes a digital recorder 320 and recorder controller 330.

Although FIGURE 3 illustrates the digital recorder 320, the present invention is not so limited, and is broad enough to encompass analog recorders. The digital recorder 320 is coupled to the call monitoring unit 310, and is employed when the user monitors a call carried on a selected telephone line (not illustrated). The function of the digital recorder 320 will be described in greater detail with respect to FIGURE 4.

The recorder controller 330 is coupled to the digital recorder 320 and audibly reproduces the call to a user in real time. In addition, the recorder controller 330 allows the user to preserve a recording to delay (or, in some embodiments, completely prevent) its overwriting. In FIGURE 3, the recorder controller 330 is illustrated as an ADSI-capable device. Those skilled in the art are familiar with the ADSI standard and its use in effecting remote control of system functions in general. Although not necessary to the present invention, an ADSI-capable recorder controller 330 may be employed to effect preservation of a recording, in accordance with the principles of the present invention, from a location distal from the digital recorder 320.

Turning now to FIGURE 4, illustrated is a block diagram of the digital recorder 320 of FIGURE 3 that may be used with the ACP 100 of FIGURE 1 and the system 300 of FIGURE 3. The digital recorder 320 includes a disk storage unit 410 for storing recorded

conversations. The digital recorder 320 further includes a disk controller 420, coupled to the disk storage unit 410, for controlling the manner in which recorded conversations are stored and erased on the disk storage unit 410. The digital recorder 320
5 still further includes a set of wire taps 430. The wire taps 430 represent telephone lines monitored by the user, and possibly marked for recording by the recorder controller 330.

The disk storage unit 410 is illustrated having a Redundant Array of Inexpensive Disks ("RAID") architecture. Those skilled in the art are familiar with the RAID architecture and the advantages associated therewith. Of course, the present invention is not limited to RAID architecture and is broad enough to encompass a wide array of storage device architectures. The disk storage unit 410 is also of a type having a finite storage capacity. As a
10 result, a recorded conversation stored in the disk storage unit 410 is subject to eventual overwriting when the disk storage unit 410 reaches full capacity.

The digital recorder 320 functions as follows. A conversation, monitored from a select wire tap within the set of
20 wire taps 430, is designated for recording and storage. The disk controller 420 controls the location within the disk storage unit 410 where the recording is stored until needed. The disk storage unit 410 of FIGURE 4 can contain a plurality of recordings arranged

in directories according to the date on which the digital recorder 320 created the plurality of recordings, or other basis of priority. In this case, the digital recorder 320 can employ aging or other basis of priority to erase older or lower priority recordings and thereby recover space for storage of more recent or higher priority recordings. Of course, this can expose older recordings that are still higher priority than more recent recordings to an ever-increasing risk of overwriting as they age.

Accordingly, the present invention allows recordings to be designated to delay or prevent them from being overwritten. Specifically, the user employs the recorder controller 330 of FIGURE 3 to prevent the digital recorder 320 from storing a more recent but lower priority conversation over a specific older but higher priority conversation. Thus, the user can eliminate the risk that important conversations will be overwritten by conversations of lower priority by ensuring the more recent lower priority conversations are only stored over older recordings that are even lower priority and no longer needed. In addition, the user can prevent such an overwriting at any time while monitoring the conversation, or even after the conversation has ended. By allowing such an "ex post facto" preservation, the user can begin monitoring a conversation after it has started, but still, after recognizing the importance of the conversation, prevent its

overwriting until the entire conversation can be reviewed from start to finish at a later time.

Turning now to FIGURE 5, illustrated is a diagram 500 of a file structure 510 suitable for storing recordings produced by the digital recorder 320 of FIGURE 4. The diagram 500 further includes a computer monitor 505 by which the file structure 510 is displayed for the user.

The file structure 510 includes first, second and third directories 520, 530, 540. The first directory 520 includes a first set of files 550, and represents the first day on which stored conversations occurred ("Day 1"). Each file within the first set of files 550 represents individual conversations stored in the disk storage unit 410 ("Conversation 1" through "Conversation N") that occurred on Day 1. The second directory 530 includes a second set of files 560, and represents the second day on which stored conversations occurred ("Day 2"). Each file within the second set of files 560 represents individual conversations stored in the disk storage unit 410 ("Conversation 1" through "Conversation N") that occurred on Day 2. The third directory 540 includes a third set of files 570, and represents any day that conversations occurred that is more recent than the first or second day ("Day N"). Each file within the third set of files 570 represents individual conversations ("Conversation 1" through

"Conversation N") more recent than those that occurred on Day 1 or Day 2.

In the illustrated embodiment, the file structure 510 represents the format by which the disk controller 420 stored recorded conversations on the disk storage unit 410. Specifically, the file structure 510 represents a plurality of recordings arranged in directories 520, 530, 540 according to the date on which the digital recorder 320 created the plurality of recordings. As discussed before, the digital recorder 320 thus employs aging to erase older recordings and thereby recover space for storage of more recent recordings. Because this can expose recordings to an increasing risk of overwriting as they age, the present invention allows the user to prevent the digital recorder 320 from storing a more recent conversation over a specific older conversation. Also as before, this preservation can occur even if the user began monitoring the conversation after its inception. Although the illustrated file structure 510 represents a plurality of recordings arranged according to their date, the present invention is broad enough to encompass a file structure based on other characteristics of the recordings.

Turning now to FIGURE 6, illustrated is a flow diagram 600 of a method of ex post facto preserving a recorded conversation

carried out according to the principles of the present invention.
The flow diagram 600 begins in a start step 610.

An inmate in a correctional facility, or other similarly
monitored person, initiates a telephone call in a step 620. The
5 call is recorded for future playback in a step 630. Recording of
the call can be predetermined to take place immediately when the
call is placed, or simply when the person monitoring the call
elects to record the call. Of course, the present invention is
broad enough to encompass any such system.

10 In a step 640, the call is available for monitoring by the
user. While monitoring is not required for the present invention,
if the user elects to monitor the call monitoring occurs in real
time. The call is then stored in a data storage device in a step
650. The data storage device may be in a RAID format, however the
15 present invention is not so limited. Those skilled in the art
understand the advantages of the RAID format. The data storage
device is of a finite capacity, thus at some point the storage
capacity of the device becomes full. When its capacity becomes
full, newly recorded calls must be recorded in place of calls
20 already stored in the data storage device. The overwriting usually
occurs based on the age of the existing calls stored on the device,
but other formats are within the broad scope of the present
invention.

In a step 660, it is determined whether the user has indicated that the current monitored call is to be prevented from overwriting. In this step 660, the user can mark the current call as such even if real time monitoring began after the call was initiated. In addition, the user can elect to prevent the overwriting of any call stored in the data storage device, even if that call has already terminated. If the user has not indicated that the current call is to be prevented from overwriting, the data storage device may store a later call over the current call in a step 670.

However, if the user has designated the current call is to be prevented from overwriting, the data storage device is prevented from storing a later call over the current call in a step 680. As discussed above, this feature of the present invention allows the user to ensure the current call is not overwritten with a new call should the data storage device become full. Finally, the flow diagram 600 ends in a step 690.

Although the present invention has been described in detail, those skilled in the art should understand that they can make various changes, substitutions and alterations herein without departing from the spirit and scope of the invention in its broadest form.

WHAT IS CLAIMED IS:

1. For use with an automated call placement system having a switching service unit, a call monitoring unit capable of monitoring a selected one of lines coupled to said switching service unit, comprising:

a recorder, coupled to said call monitoring unit, that monitors a call carried on said selected one of said lines and creates a recording of said call on a storage medium associated therewith, said storage medium being of finite capacity thereby causing said recording to be subject to eventual overwriting; and

a recorder controller, coupled to said recorder, that audibly reproduces said call to a user in real time and allows said user to preserve said recording to delay said overwriting.

2. The system as recited in Claim 1 wherein said recorder controller allows said user to preserve said recording to prevent said overwriting.

3. The system as recited in Claim 1 wherein said recorder is a digital recorder.

4. The system as recited in Claim 1 wherein said storage
2 medium comprises a disk.

5. The system as recited in Claim 1 wherein said storage
2 medium contains a plurality of recordings arranged in directories
3 according to a date on which said recorder created said plurality
4 of recordings.

6. The system as recited in Claim 1 wherein said recorder
2 controller is an ADSI-capable device.

7. The system as recited in Claim 1 wherein said recording
2 is subject to overwriting on an aged basis.

8. For use with an automated call placement system having a switching service unit, a method of making a recording of a conversation occurring on a selected one of lines coupled to said switching service unit, comprising:

monitoring a call carried on said selected one of said lines;

creating a recording of said call on a storage medium, said storage medium being of finite capacity thereby causing said recording to be subject to eventual overwriting; and

audibly reproducing said call to a user in real time with a recorder controller; and

allowing said user, with said recorder controller, to preserve said recording to delay said overwriting.

9. The method as recited in Claim 8 wherein said recorder controller allows said user to preserve said recording to prevent said overwriting.

10. The method as recited in Claim 8 wherein said recorder is a digital recorder.

11. The method as recited in Claim 8 wherein said storage medium comprises a disk.

12. The method as recited in Claim 8 wherein said storage
2 medium contains a plurality of recordings arranged in directories
3 according to a date on which said recorder created said plurality
4 of recordings.

13. The method as recited in Claim 8 wherein said recorder
2 controller is an ADSI-capable device.

14. The method as recited in Claim 8 wherein said recording
2 is subject to overwriting on an aged basis.

15. An automated call placement system (ACP), comprising:

2 a switching service unit;

3 a plurality of stations coupled to said switching service
4 unit;

5 a call monitoring unit capable of monitoring a selected one of
6 lines coupled to said switching service unit;

7 a storage medium associated with said call monitoring unit;

8 a recorder, coupled to said call monitoring unit, that
9 monitors a call carried on said selected one of said lines and
10 creates a recording of said call on a storage medium, said storage
11 medium being of finite capacity thereby causing said recording to
12 be subject to eventual overwriting; and

13 a recorder controller, coupled to said recorder, that audibly
14 reproduces said call to a user in real time and allows said user to
15 preserve said recording to prevent said overwriting.

16. The ACP as recited in Claim 15 wherein said recorder is
2 a digital recorder.

17. The ACP as recited in Claim 15 wherein said storage
2 medium comprises a disk.

18. The ACP as recited in Claim 15 wherein said storage
2 medium contains a plurality of recordings arranged in directories
3 according to a date on which said recorder created said plurality
4 of recordings.

19. The ACP as recited in Claim 15 wherein said recorder
2 controller is an ADSI-capable device.

20. The ACP as recited in Claim 15 wherein said recording is
2 subject to overwriting on an aged basis.

3 21. A system for managing deletion of files stored in a
4 storage unit, comprising:

5 a file structure including directories, each of said
6 directories designated to contain only files created during
7 particular periods of time; and

8 a controller, associated with said storage unit, that recovers
9 storage capacity in said storage unit by deleting an entire one of
10 said directories based on said particular periods of time.

11 22. The system as recited in Claim 21 wherein said files are
12 recordings created during said particular periods of time.

13 23. The system as recited in Claim 21 wherein said controller
14 deletes an oldest one of said directories.

15 24. The system as recited in Claim 21 wherein said particular
16 period of time is one day.

17 25. The system as recited in Claim 21 wherein said storage
18 unit is a disk storage unit.

19 26. The system as recited in Claim 21 wherein selected ones
20 of said files are removed from one of said directories before said
21 controller deletes said directory.

22 27. The system as recited in Claim 21 wherein said controller
23 deletes said one of said directories by deleting said files
24 contained in said directory and renaming said one.

Continued

SYSTEM AND METHOD FOR EX POST FACTO
PRESERVING A RECORDED CONVERSATION

ABSTRACT OF THE DISCLOSURE

For use with an automated call placement system (ACP) having
5 a switching service unit (SSU), a call monitoring unit capable of
monitoring a selected one of lines coupled to the switching service
unit and a method of making a recording of a conversation occurring
on a selected one of lines coupled to the switching service unit.
In one embodiment, the system includes: (1) an analog or digital
10 recorder, coupled to the call monitoring unit, that monitors a call
carried on the selected one of the lines and creates a recording of
the call on a storage medium associated therewith, the storage
medium being of finite capacity thereby causing the recording to be
subject to eventual overwriting and (2) a recorder controller,
15 coupled to the recorder, that audibly reproduces the call to a user
in real time and allows the user to preserve the recording to delay
or prevent the overwriting.

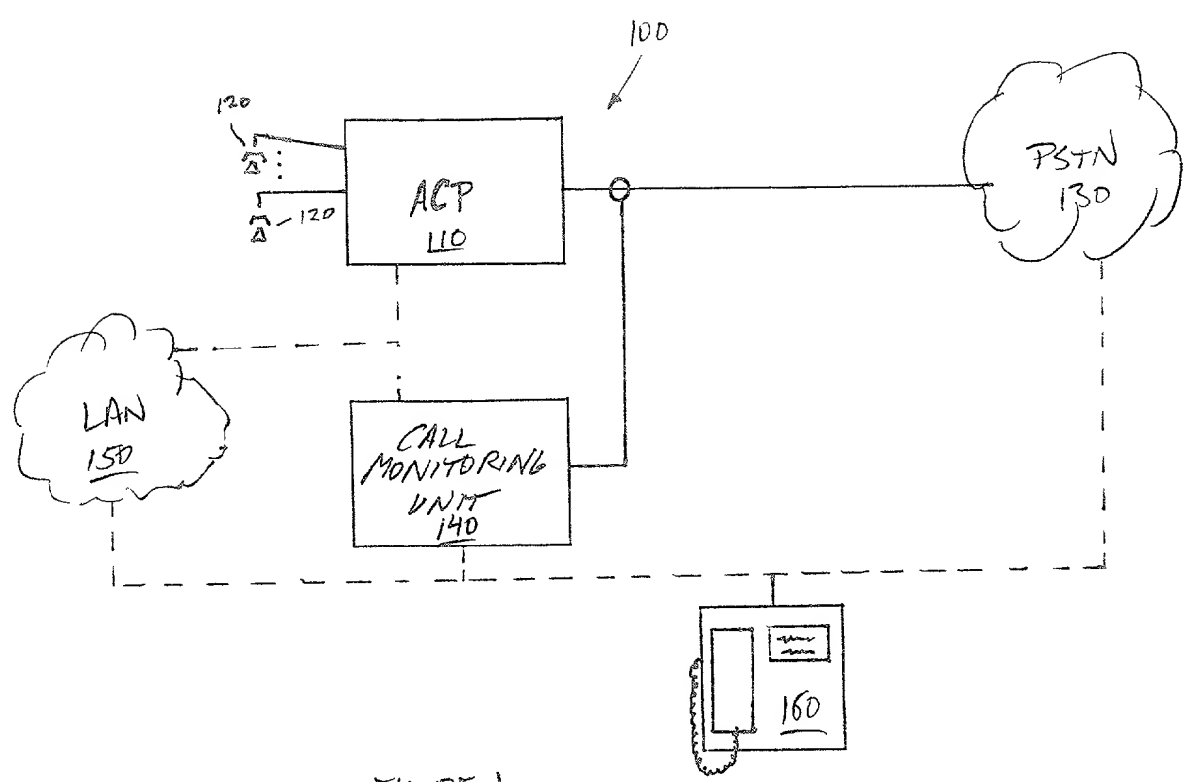
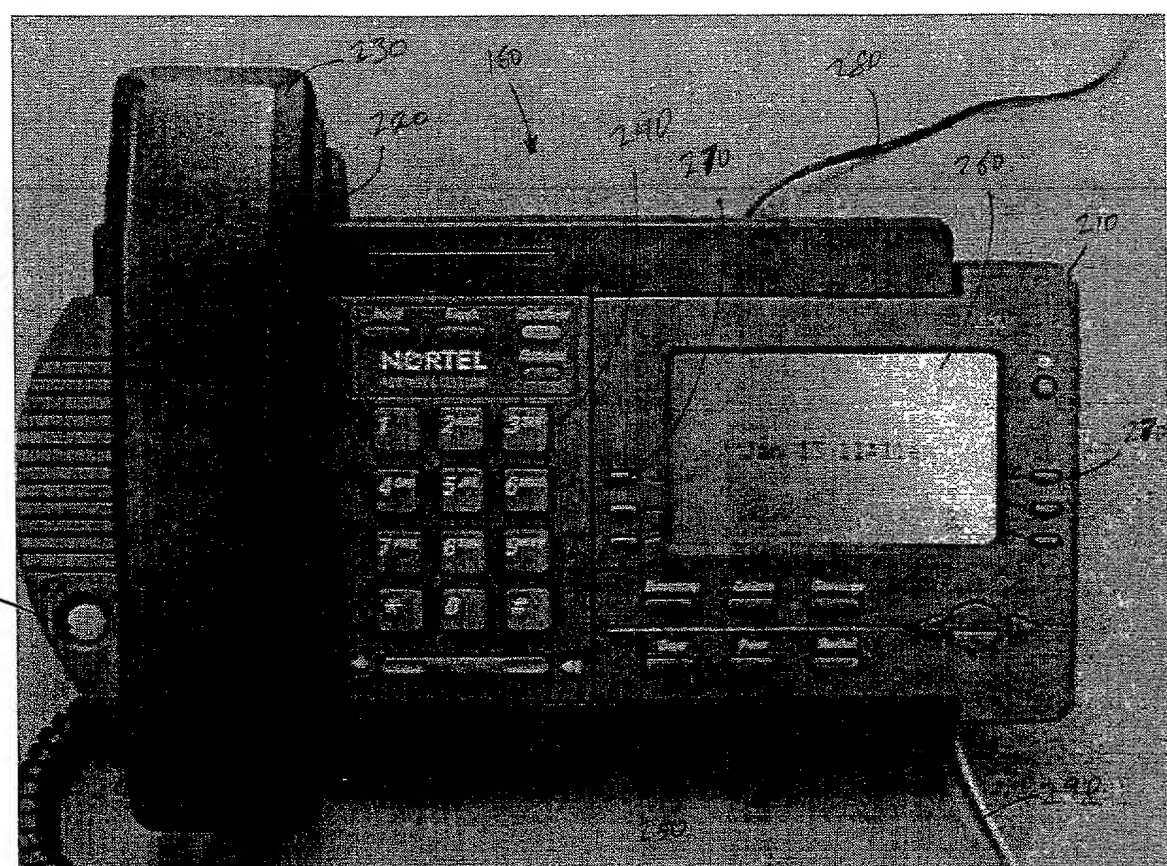


FIGURE 1



TELEQUIP Monitoring Phone

FIGURE 2

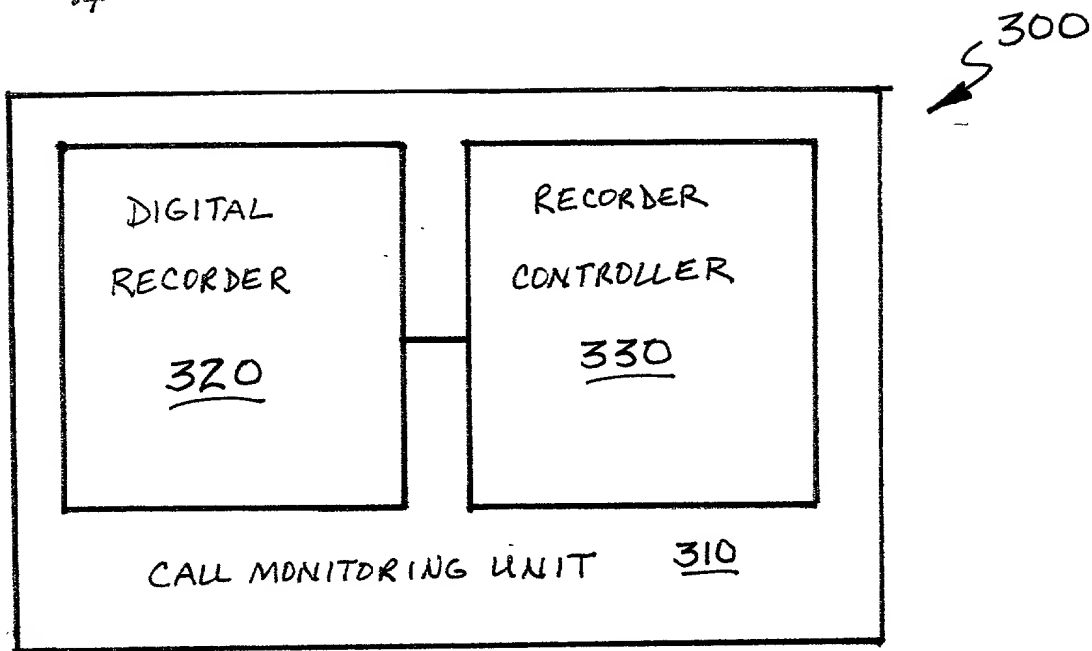


FIGURE 3

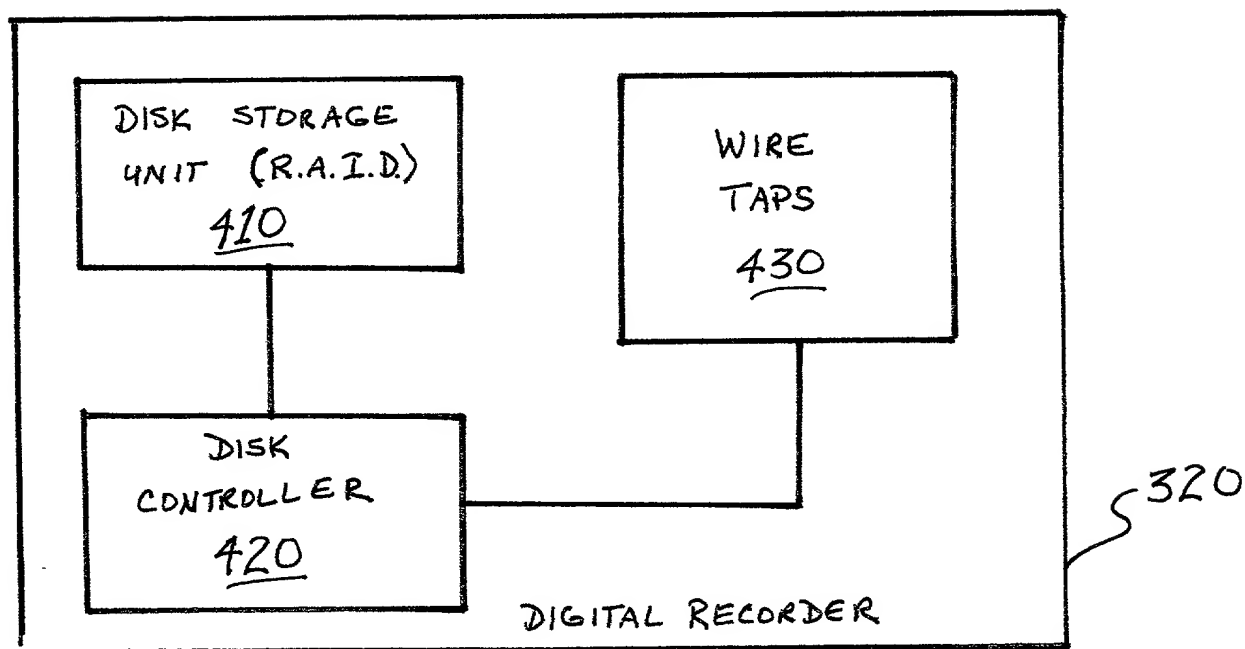


FIGURE 4

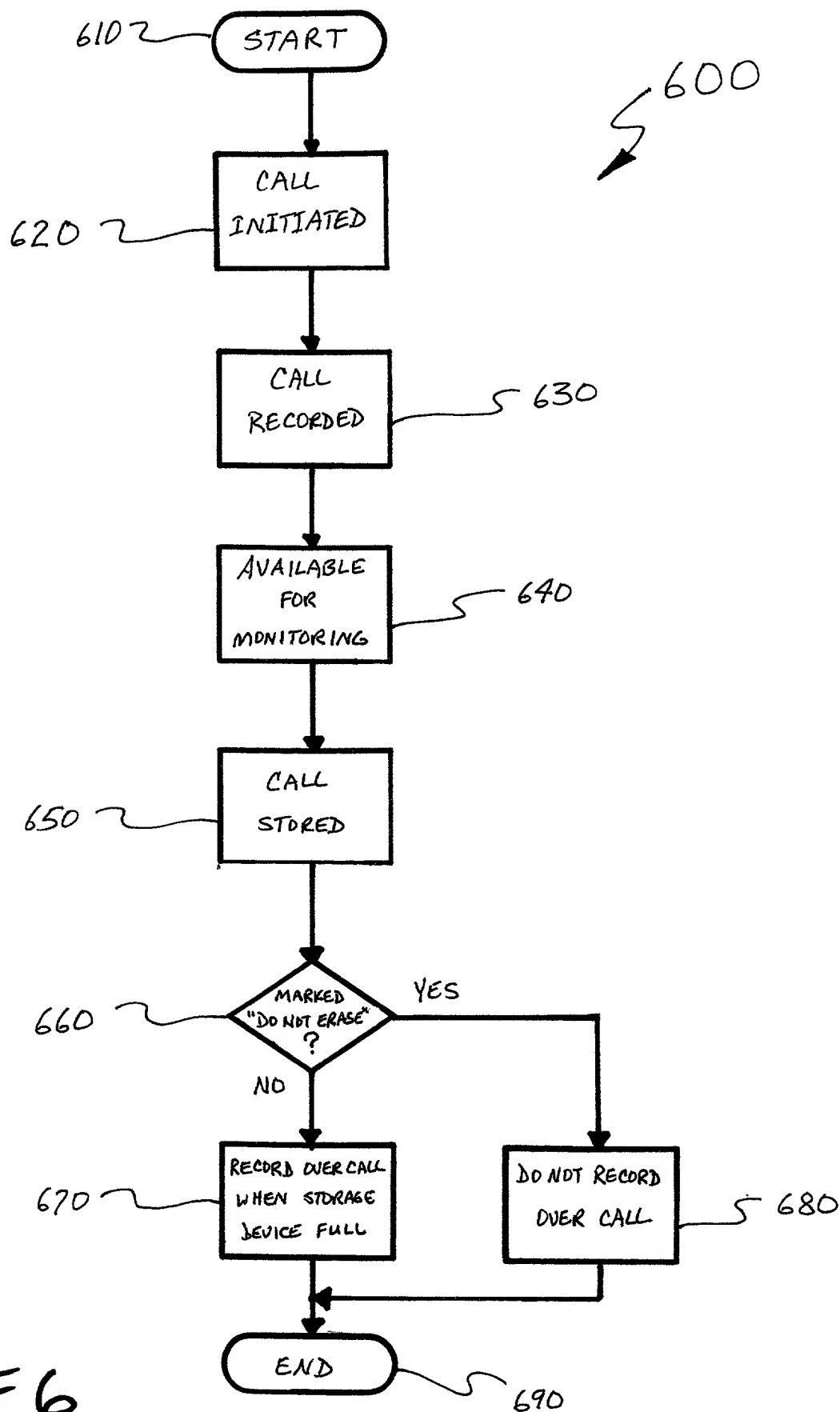


FIGURE 6

DECLARATION AND POWER OF ATTORNEY

As a below named joint inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am an original, first and joint inventor of the subject matter which is claimed and for which a patent is sought on the invention, design or discovery entitled "SYSTEM AND METHOD FOR EX POST FACTO PRESERVING A RECORDED CONVERSATION," the specification of which is attached hereto.

I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above;

I acknowledge the duty to disclose to the Office all information known to me to be material to the patentability of this application as defined by Title 37, Code of Federal Regulations, § 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, § 119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

NUMBER	COUNTRY	DATE FILED	PRIORITY CLAIMED
	None		

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

<u>US/PCT Serial Num</u>	<u>Date Filed</u>	<u>Status</u>
None		

I hereby appoint:

David H. Hitt	Registration No. 33,182
T. Ling Chwang	Registration No. 33,590
Charles W. Gaines	Registration No. 36,804
Glenn W. Boisbrun	Registration No. 39,615
Tung T. Nguyen	Registration No. 42,935
Mark E. Kelley	Registration No. 45,857
Greg H. Parker	Registration No. 44,995
Jimmy L. Heisz	Registration No. 38,914

all of the firm of HITT CHWANG & GAINES, P.C. my attorneys with full power of substitution and revocation, to prosecute this application and to transact all business in the United States Patent and Trademark Office connected therewith, and to file and prosecute any international patent applications filed thereon before any international authorities under the Patent Cooperation Treaty.

Send correspondence to:

David H. Hitt
HITT CHWANG & GAINES, P.C.
P.O. Box 832570
Richardson, Texas 75083

and direct all telephone calls to David H. Hitt at (972) 480-8800.

Atty. Docket No.: TQIP-0002

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under § 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of first inventor: Uday R. Parekh

Inventor's signature: Uday R. Parekh Date: 5/24/2000

Residence: City of Plano
County of Collin
State of Texas

Citizenship: United States of America

Post Office Address: 4552 Huntwick Drive
Plano, Texas 75024

Full name of second inventor: John Beck Mow

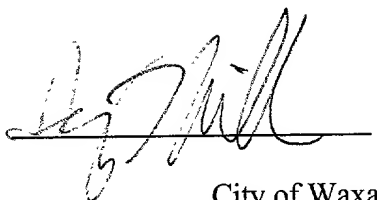
Inventor's signature: John Beck Mow Date: 5-24-80

Residence: City of Dallas
County of Dallas
State of Texas

Citizenship: United States of America

Post Office Address: 6911 Midcrest Drive
Dallas, Texas 75240

Full name of third inventor: Danny C. Milliorn

Inventor's signature:  Date: 5-24-2000

Residence: City of Waxahachie
County of Ellis
State of Texas

Citizenship: United States of America

Post Office Address: 1156 Maree Drive
Waxahachie, Texas 75165